REMARKS

Reconsideration and allowance of the present application are respectfully requested. Claims 1-23 remain pending in the application. By this Amendment, the specification is amended; claims 1, 3, 4, 6, 7, 10, 21 and 22 are amended; and claim 23 is added.

Paragraph [0003] in the specification is amended to delete a sentence relating to the background information. Paragraph [0007] in the specification is amended to insert a description of a dielectric substrate being held within the microstrip-waveguide transition as shown in Fig. 3. No new matter is added.

In numbered paragraphs 1-3 of the Office Action, claims 3, 4, 6, 10 and 21 are objected to for informalities. The claims are amended to obviate the objection. Withdrawal of the objection is respectfully requested.

Applicants acknowledge with appreciation the indication in numbered paragraph 8 of the Office Action that claims 3, 10, 11 and 22 contain allowable subject matter; and the indication in numbered paragraph 9 of the Office Action that claims 12-19 are allowed. Claims 3 and 22 are amended to incorporate the respective independent claims and the intervening claims, if any. Claims 10 and 11 depend from claim 3. Accordingly, applicant respectfully submits that claims 3, 10, 11 and 22 are placed in condition for allowance.

In numbered paragraph 5, independent claim 1, along with various dependant claims, are rejected as being anticipated by U.S. Patent 6,201,453 (Chan et al.). In numbered paragraph 7, dependent claims 7, 20 and 21 are rejected as being unpatentable over the Chan et al. patent in view of U.S. Patent 6,580,335 (Iizuka et al.). These rejections are respectfully traversed.

Applicant has disclosed a microstrip-waveguide transition is disclosed for transmission of electromagnetic energy. As exemplified in Fig. 1, a microstrip-waveguide transition 100 includes a waveguide 102 having an open end 104, a dielectric substrate 106 attached to the open end, and a microstrip probe 110 on the dielectric substrate 106. A capacitive susceptance occurs across the open end when the open end is exposed to electromagnetic energy and wherein the capacitive susceptance is countered with inductive susceptance (e.g., paragraph [0012]). As shown in Figs. 1 and 2, the microstrip probe 110 and 210 exits a broad wall of the microstrip-waveguide transition 100.

The foregoing features are broadly encompassed by claim 1, which recites, among other features, a waveguide having an open end; a dielectric substrate attached to the open end; a microstrip probe on the dielectric substrate, wherein a capacitive susceptance across the open end when the open end is exposed to electromagnetic energy; and means for countering capacitive susceptance with inductive susceptance.

The Chan et al. patent discloses an H-plane waveguide probe. Figs. 3-5 show a second leg 42 of the transition conductor 39 exiting a narrow wall of the waveguide probe. The exit as taught by the Chan et al. patent produces an H-plane waveguide output (abstract), whereas the broad wall exit as shown in the applicant's Figs. 1 and 2 results in an E-plane probe. Accordingly, the differences in the disclosed structures result in different probe results.

Regarding claim 1, the Chan et al. patent does not disclose or suggest means for countering the capacitive susceptance with inductive susceptance as claimed. The Chan et al. patent discloses that the impedance of the loop conductor 38 can

match the impedance of the waveguide 31 by shaping the loop conductor 38 along the waveguide 31. However, the impedance of the loop conductor 38 as disclosed by the Chan et al. patent relates to "approximately 400 Ω" (col. 3, lines 30-35), which is different from the characteristic impedance of the waveguide. The impedance of the loop conductor as taught by the Chan et al. patent is not inductive susceptance to counter the capacitive susceptance as claimed.

Regarding claims 4 and 9, the Examiner asserts at page 3 of the Office Action that the Chan et al. patent teaches a backshort cap attached to an open end with a conductive adhesive capable of countering capacitive susceptance with inductive susceptance. These assertions are respectfully traversed.

The Chan et al. patent discloses a cover 34 secured to a waveguide 21 by welding or soldering (col. 3, lines 8-11). Unlike the claimed backshort cap, the cover 34 as shown in Figs 3-5 of the Chan et al. patent is larger in size than the waveguide 31. The Chan et al. patent does not disclose or suggest that the cover 34 acts to counter capacitive susceptance with inductive susceptance as recited in claim 4. The Chan et al. patent does not disclose or suggest that the cover 34 is attached to an open end with a conductive adhesive.

Regarding claims 20 and 21, the Examiner at paragraph 7, page 4 of the Office Action, admits that the Chan et al. does not teach the corners of the waveguide and backshort cap are in alignment, as recited in claim 20; and asserts that the Chan et al. patent teaches tuning out capacitive susceptance between the open end and the microstrip probe with inductive susceptance, as recited in claim 21.

Regarding claim 20, the Iizuka et al. patent does not cure the deficiencies of the Chan et al. patent. The Iizuka et al. patent discloses a short-circuiting layer 11 formed on one surface of a dielectric substrate 4 of the transition 110, the short-circuiting metal layer 11 having a slit for a strip line 3. However, the Iizuka et al. patent does not disclose or suggest a backshort cap attached to a second side surface, wherein corners of the waveguide and backshort cap are in alignment.

Regarding claim 21, the Chan et al. patent does not disclose or suggest a means for tuning out capacitive susceptance between the open end and the microstrip probe with inductive susceptance. The Chan et al. patent discloses that the impedance of the loop conductor 38 can match the impedance of the waveguide 31 by shaping the loop conductor 38 along the waveguide 31. However, the impedance of the loop conductor 38 as disclosed by the Chan et al. patent relates to "approximately 400 Ω" (col. 3, lines 30-35), which is different from the characteristic impedance of the waveguide. The impedance of the loop conductor as taught by the Chan et al. patent is not inductive susceptance to tune out capacitive susceptance as claimed.

Claims 3 and 22 contain allowable subject matter, and are amended to incorporate the subject matters from the respective independent claims.

Claim 23 is added to recite a conductive plate disposed on a dielectric substrate, along with other features in various relations relating to the conductive plate.

For the foregoing reasons, Applicant's claims 1, 3, 20, 22 and 23 are allowable over the applied references. Claims 12-19 were indicated to be allowed. The remaining claims depend from independent claims 1, 3 and 20 and recite

additional advantageous features which further distinguish over the documents relied upon by the Examiner. As such, the present application is considered in condition for allowance.

All objections and rejections raised in the Office Action having been addressed, it is respectfully submitted that the application is in condition for allowance and a Notice of Allowance is respectfully solicited.

Respectfully submitted,

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